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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,042	01/15/2002	Armin Schlemmer	P21790	2920

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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

ROSS, DANA

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

EC

Office Action Summary

Application No.

10/045,042

Applicant(s)

SCHLEMMER ET AL.

Examiner

Dana Ross

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This is a second office action, final rejection on Application No. 10/045,042 in response to the amendment filed on May 28, 2003.

Specification

2. The objection to the specification is withdrawn due to the Applicants amendment filed May 28, 2003.

Claim Rejections - 35 USC § 112

3. The rejection of claims 2, 8, 12, 13, 15-39 under 35 USC § 112 2nd Paragraph are withdrawn due to Applicants amendment filed May 28, 2003.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-13, 15-17 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,540,447 (Nagata et al.) in view of U.S. Pat. No. 4,776,732 (Hale) and in further view of U.S. Pat. No. 6,464,443 (Shaffer). In regards to claim 1, Nagata et al. teaches an indexable insert with at least once circumferential cutting edge 6 (col. 5, lines 16-32), a support surface 2 (col. 4, lines 59-67), and obtuse Q and acute corner angles P (fig. 1, col. 4, lines 34-56); a thickness of the indexable tip from said support surface 2 to the acute corner angles P is greater than a thickness of support surface to the obtuse corner angles Q forming an incline between the obtuse and acute corners (fig. 2, col. 4, lines 54-56). Nagata et al. teaches that the insert can be of

Art Unit: 3722

any shape as long as the insert 1 has the nose part 8 which makes up the acute angle corner P (col. 4, lines 39-41, col. 8, lines 5-12) but does not specifically teach the hexagonal shape of the insert. Nagata et al. does not teach the drilling and turning tool with a base body, clamping part, and working part spaced axially from each other.

Hale teaches a hexagonal indexable insert with acute 112 and obtuse 113 angles (fig. 1, col. 2, lines 18-21).

Shaffer teaches a cutting tool for drilling and turning, comprising a base body 24 comprising a clamping part 40 (fig. 1) and a cylindrical working part 26 (fig. 3) axially spaced from each other; and an indexable tip 28, releasably connected to the working part 26, having at least one circumferential cutting edge (fig. 2, col. 3, lines 24-36).

In regard to claims 2-6, Shaffer teaches the working part 26 essentially cylindrical (fig. 3), and the indexable tip 28 positioned at an end of the working part remote from the clamping part 40 (fig. 2) with the working part 26 comprising a flute running in a direction of a tool axis and a form-locking seat for the indexable tip 28 (fig. 3), wherein the indexable tip 28 is seated on the working part 26, at least one cutting edge slightly projects from the working part (fig. 2 and 3) and the flute running in a direction of the tool axis is formed with a twist (fig. 2).

In regard to claim 7, Hale teaches the indexable tip comprises alternately obtuse and acute corners and six straight cutting edges (fig. 1 and col. 3, lines 17-34).

In regard to claim 8, Shaffer teaches the working part 26 and Hales teaches the hexagonal indexable tip 111. Shaffer in view of Hale does not teach the dimensions of the indexable tips or the greatest width of the indexable tip in comparison to the working part. It would have been an obvious matter of design choice to increase or decrease the greatest size of the hexagonal

Art Unit: 3722

indexable tip as taught by Hale, since such a modification would have involved a mere change in the size of the component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

In regard to claim 9, Hale teaches at least one cutting edge comprises three cutting edges, and wherein a trajectory of at least a part of one of the three cutting edges projects slightly beyond an outer contour of the working part (fig. 3, col. 3, lines 24-29).

In regard to claims 10-13, Shaffer teaches the base body 24 comprises at least one bore 42 for inserting at least one of coolant and lubricant, and an exit 46 obliquely arranged relative to the tool axis directed at the indexable tip (col. 3, lines 43-51).

In regard to claims 15-17, Hale teaches at least one cutting edge comprising a plurality of cutting edges arranged to form acute angled corners having an angle of about 88° (col. 3, lines 48-52).

In regard to claim 40, see claim 1 and 8 rejections above.

Therefore it would have obvious to one of ordinary skill in the art at the time the invention was made to modify the indexable cutting insert as taught by Nagata et al. to include the hexagonal shape and cutting edges as taught by Hale and to include the base body and coolant as taught by Shaffer for the purpose of balancing the forces on the cutting edges on either side of the obtuse angle (see Hale, col. 1, lines 60-62) drilling or turning.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,540,447 (Nagata et al.) in view of U.S. Pat. No. 4,776,732 (Hale) and U.S. Pat. No. 6,464,433 (Shaffer) and further in view of U.S. Pat. No. 5,460,464 (Arai et al.). Nagata et al. as modified by Hale and Shaffer teach all aspects of the claimed invention as described in the above claim 1

Art Unit: 3722

rejection. However, Nagata et al. as modified by Hale and Shaffer do not teach that the center hole of the indexable tip is eccentrically positioned outside a center of the working part. Arai et al. teaches a cutting insert having a center hole eccentrically positioned (col. 10, lines 58-62).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the indexable hexagonal tip and support member as taught by Nagata et al. as modified by Hale and Shaffer to include the eccentrically positioned center hole as taught by Arai et al. for the purpose of tighter contact between the support member and indexable hexagonal tip (see Aria et al. col. 10, lines 62-65).

7. Claims 18-33 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,540,447 (Nagata et al.) in view of U.S. Pat. No. 4,776,732 (Hale). In regards to claims 18-21 and 39, Nagata et al. teaches an indexable insert with at least once circumferential cutting edge 6 (col. 5, lines 16-32), a support surface 2 (col. 4, lines 59-67), and obtuse Q and acute corner angles P (fig. 1, col. 4, lines 34-56); a thickness of the indexable tip from said support surface 2 to the acute corner angles P is greater than a thickness of support surface to the obtuse corner angles Q (fig. 2, col. 4, lines 54-56). Nagata et al. teaches that the insert can be of any shape as long as the insert 1 has the nose part 8 which makes up the acute angle corner P (col. 4, lines 39-41, col. 8, lines 5-12) but does not specifically teach the hexagonal shape of the insert. Hale teaches an indexable hexagonal cutting tip for a cutting tool for machining of metals and alloys comprising a flat supporting area 215, a face 114 opposite the supporting area, the flat supporting area and the face being arranged to form open spaces 217 coupling the support area and the face, and six circumferential cutting edges 116 arranged to form alternating acute 112 and obtuse 113 angled corners which are also rounded, wherein a vertical distance of the cutting

Art Unit: 3722

edges from the supporting are in a region of the obtuse angled corners is a minimum with a center hole as an attachment device (fig. 1, 2, 3, col. 3, lines 24-34).

In regards to claims 22-33, Hale teaches the obtuse angles between 160° and 176° and the acute angled corners are 80° and 100° (col. 3, lines 48-52) and the angles between the cutting edge and supporting area up to 12° , preferably being 2° to 10° with the preferred angle of taper about 5° (col. 4, lines 20-23).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the insert as taught by Nagata et al. to include the acute angles for the hexagonal insert as taught by Hale for the purpose of balancing the forces on the cutting edges on either side of the obtuse angle (see Hale, col. 1, lines 60-62) drilling or turning.

8. Claims 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,540,447 (Nagata et al.) in view of U.S. Pat. No. 4,776,732 (Hale) and further in view of U.S. Pat. No. 5,876,154 (Enderle). Nagata et al. as modified by Hale teaches all aspects of the above claim 18 rejection. Hale does not teach the second section bordering the supporting area. Enderle teaches a hexagonal tip with angled first and second sections, the second section angled and bordering the supporting area between around 12° and 25° (fig. 4a, 4e, col. 4, lines 48-50).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the indexable tip as taught by Hale to include the second angled section bordering the supporting area as taught by Enderle for the purpose of having a rake face section adjoining the cutting edge which has a positive rake angle relative to the cutting insert plane (see Enderle, col. 1, lines 6-15).

Response to Arguments

9. Applicant's arguments with respect to claims 1-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Ross whose telephone number is (703) 305-7764. The examiner can normally be reached on Mon-Fri 7:00am - 3:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on (703) 308-2159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Art Unit: 3722

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

dmr

June 25, 2003


A. L. WELLINGTON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700